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Low cardiac output syndrome complicating subxiphoid pericardiostomy for pericardial effusion

To the Editor:

We read with great interest the article on subxiphoid pericardial drainage for pericardial tamponade by Moores and associates[1] and we agree substantially with their conclusions. However, the letter to the Editor from Neelakandan, Jayanthi, and Kanthimanthi[2] and the reply by Moores and associates[3] prompted us to share our experience with low cardiac output syndrome after subxiphoid pericardial drainage.

We have performed subxiphoid pericardiostomy in 53 patients, 14 to 80 years old (51.7 ± 17.2 years). All the procedures were performed with the patient under general anesthesia. Otherwise, our operative technique was similar to that described by Moores and associates.[1] Seventy percent of the patients were subjected to the operation because of clinically evident or impending cardiac tamponade and the remaining 30% because of pericardial effusion that was chronic, recurrent, or resistant to medical treatment. Ten (18.9%) patients were found to have malignant effusions. The operative mortality, defined as death within 30 days of the operation or during the same hospitalization, was 13.2% (seven patients), six of seven deaths occurring in patients with cancer and one in a patient with acquired immunodeficiency syndrome (AIDS). Forty-four of the 46 patients who were discharged from the hospital were followed up regularly with clinical and echocardiographic examinations for 1 to 68 months (mean 24.5 months). None of these patients had a recurrence of the effusion necessitating further surgical intervention.

In this relatively small series, four patients (7.5%) had low cardiac output syndrome within the first 24 postoperative hours, notwithstanding the "marked, sudden improvement in their hemodynamic status after drainage of the pericardial effusion."[3] Despite maximal inotropic support, three of these four patients died several hours after the onset of the syndrome. The first patient was a 36-year-old woman with Hodgkin's disease of the mediastinal lymph nodes who was subjected to mediastinal irradiation 10 months before the operation. Her malignant disease was apparently under control at the time of the operation, and her effusion was not found to be malignant. The second patient was a 65-year-old woman with a malignant pericardial effusion, who was seen 5 years after a modified radical mastectomy for cancer of the left breast. The third patient was a 31-year-old man with AIDS complicated by cardiomyopathy and pericardial effusion resulting in cardiac tamponade. Last, the patient who survived was a 60-year-old woman with chronic pericardial effusion of unknown origin that was resistant to medical treatment. She was operated on mainly for diagnostic purposes.

In two of these four patients there was a risk factor that probably contributed to their poor postoperative cardiac performance. The first patient probably had radiation-induced myocardial damage, and the third, an AIDS-related cardiomyopathy. The other two patients, however, had an apparently normal myocardium, as shown by preoperative echocardiography and operative findings.

In conclusion, in contrast to the experience of Moores and associates,[1,3] we corroborate Neelakandan, Jayanthi, and Kanthimanthi's clinical observation[2] that low cardiac output syndrome can complicate subxiphoid pericardial drainage even in patients with apparently normal myocardium and preoperative hemodynamic status. Therefore these patients require close postoperative monitoring for the first 24 hours, preferably in the intensive care unit, and aggressive treatment in case low cardiac output develops. So far, we have not been able to define the cause of this highly lethal syndrome in patients with apparently normal myocardium. The pathophysiologic mechanism might be the same as that producing the syndrome in patients with constrictive pericarditis subjected to pericardiectomy.[4] We doubt that gradual decompression of pericardial effusion, as described by Neelakandan, Jayanthi, and Kanthimanthi,[2] is technically feasible and effective.

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REFERENCES

1. Moores DWO, Allen KB, Faber LP, et al. Subxiphoid pericardial drainage for pericardial tamponade. J Thorac Cardiovasc Surg 1995;109:546-52.
2. Neelakandan B, Jayanthi N, Kanthimanthi R. Subxiphoid drainage for pericardiai tamponade (letter). J Thorac Cardiovasc Surg 1996;111:489.
3. Moores DWO, Allen KB, Faber LP, et al. Reply to the Editor. J Thorac Cardiovasc Surg 1996;111:489.
4. Spray TL. Surgical disorders of the pericardium. In: Sabiston DC Jr, editor. Textbook of surgery: the biological basis of modern surgical practice. 14th ed. Philadelphia: WB Saunders, 1991:1815-25.

[Response declined.]

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